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ABSTRACT

The need for encouraging research and scholarship in masters-only institutions (also called comprehensive universities) is discussed from the standpoint of gains to be made in the educational experiences of students at these institutions and the importance of these universities as employers of faculty with research training. A survey was sent to 99 members of the Council of Graduate Schools from masters-only institutions, of which 44 were completed and returned. Data are presented and discussed concerning teaching loads, types of support for research and scholarship, types of assistance from offices dealing with sponsored projects or research, and proposals generated and accepted. Faculty involvement was found to be fairly high and acceptance rates good. A number of ways in which masters-only institutions can further encourage faculty research and scholarship are discussed, including: (1) institutional commitment, including consideration of such factors in retention, promotion and tenure decisions; (2) changes in teaching loads; (3) faculty release time; (4) administrative support; (5) use of assistance offered by the Office of Federal Projects of the American Association of State Colleges and Universities; (6) use of initiatives offered by the National Science Foundation and the National Institutes of Health; and (7) institutional incentive programs. Two figures describe the Office of Sponsored Projects and a university foundation incentive program. (KM)

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ENCOURAGING RESEARCH AND SCHOLARSHIP IN MASTERS ONLY INSTITUTIONS

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Encouraging Research and Scholarship in Masters Only Institutions

More than 3,300,00 students were enrolled in comprehensive universities, generally also called masters only institutions, in 1987. This enrollment represents more than 45 percent of the U.S. enrollment in senior institutions of higher education (Carnegie, 1987). As knowledge changes at an ever-increasing pace, as technology continues to change what we know and how we do what we know, and as we realize that teaching and research are linked in ways often not acknowledged previously, it becomes apparent that research and other scholarly activity must be a part of undergraduate and, especially, graduate education at these institutions.

For the welfare of our students, our programs, and our faculty we must encourage and support faculty research and scholarship even though our campuses are not "research institutions." We are hearing warnings about over-emphasizing research and underemphasizing teaching, and I would agree we do not want to neglect teaching or abuse students as research assistants. It is important for masters only institutions' to emphasize their strength (teaching) and to link teaching with faculty and student research--to use our faculty as model teacher/scholars for students. After all, teaching and research have a common denominator...learning. If we link teaching, research, and learning, we can avoid the pitfalls of an overemphasis on research and continue to complement the research institutions, providing another option for students and faculty. The California State University system currently has more than twice the number of masters level students

(32,000) as the University of California, and grants approximately 9,000 masters degrees each year. Clearly, an emphasis on faculty research and scholarship and on cooperative research between faculty and students would improve the experience of these masters level students. Cooperative research between faculty and undergraduate or graduate students can produce better students--students highly qualified for doctoral studies and for professional roles.

We often hear discussion of basic vs. applied research. In many instances, we don't need to enter this debate. Both basic and applied research have merit and are needed. It is often hard to define basic vs. applied research, and has been joked that "We can't tell you the difference, but we know it when we see it." We do see basic as well as applied research on many masters only campuses. As a faculty member enters a research project, he or she does not usually say, "Now, will I call this basic or applied research?" Faculty have a research interest, get funding if fortunate, and begin...what one ends up with is often, at least in the beginning, open."

We also are hearing discussion recently of "big vs. small science," and, of course, we are a part of the "small end" of this discussion. We do not wish to argue that large research centers and programs are not necessary. They are. However, is it fair to Ph.D. faculty, many of whom are not at research institutions, to be disenfranchised from research involvement? In science areas alone, 23 of the 200 largest university employers of science, social science, and engineering faculty are comprehensive universities. The 63,437 science, social science, and engineering faculty in comprehensive universities, along with 24,612 such faculty in liberal arts and baccalaureate institutions, have been

described as "a growing army of highly capable 'forgotten scientists'" (Drew, 1987). Many of these faculty will not be able to fully implement what they know or to continue to grow as scientific researchers. Frank Darknell, a sociologist at CSU, Sacramento, has suggested the medieval concept of "rustication" may describe the situation in which many of these faculty find themselves (Drew, 1987).

Due to a changed marketplace over the past 15 or so years, new Ph.D.'s have been hired as faculty at institutions unlike those from which they graduated (Cartter, 1976; Casanova, 1987; Drew, 1987). Muffo and Robinson (1981) found a considerable increase in Ph.D. science graduates from "top ten" research universities at every category of institution. New Ph.D.'s who once would have gone to our top institutions are now searching for jobs at less distinguished institutions. A study of science faculty at California State University campuses found that 73 percent of the science faculty had received their doctoral degrees from among the 50 research universities classified by the Carnegie Foundation as "Research I," those universities receiving the most research funding (Darknell & Darknell, 1982).

A recent California State University report from the Office of the Chancellor (1987) states that, in general, although Ph.D. science faculty have been distributed in new ways among the nation's institutions, there has not been a corollary redistribution of federal research funding. This same report notes that, from 1950 to 1984, comprehensive universities produced an increase of 10 percent of the baccalaureate graduates going on to earn Ph.D.'s (an increase from 19 to 29 percent). While it is true that recent experiments to somewhat redistribute federal funds have produced successful results (e.g., the recent

superconductivity research conducted at the University of Alabama at Huntsville and the University of Houston), we have not seen a real change in the distribution of funds.

In summary, we can see that comprehensive universities have become increasingly important as employers of faculty with research training and as producers of future researchers. Our campuses are places where research is occurring and where support for such research is needed.

In preparation for this presentation, a survey was sent to CGS members from masters only institutions to begin to develop a baseline of information regarding their research efforts. Ninety-nine surveys were mailed, and 44, or approximately 50 percent, of these were returned. The average size of these institutions was 9,144 students, with 24,285 as the largest and 270 as the smallest. Faculty size averaged 484 at these responding institutions, with 1,251 as the largest and 11 as the smallest.

Teaching load varied highly at responding institutions, with 24 units as the high semester load and 6 as the low. The average teaching load was 12.3 semester units. Seventy-nine percent of these institutions had 12 unit course loads per semester. Forty-eight percent of these institutions did not use a graduate differential in assigning faculty workloads. Twenty-three percent reported such assignment was contingent on the decision of the department or college.

The following types of support for faculty research and scholarship were reported:

* Release time	(84%)
* Summer Funding	(63.6%)
* Travel Funds (Professional Development)	(93.1%)
* Student/Graduate Assistance	(84%)
* Funds for Publication	(54.5%)
* Campus Funds for Research Projects	(81.8%)
* Sponsored Projects Assistance	(88.6%)
* Other	(25%)
including:	
Sabbaticals	(6.8%)
Electronic Searches	(4.5%)
Exchanges	(4.5%)
Research Awards	(6.8%)
Clerical	(4.5%)
Recognition Awards	(2.2%)
Equipment Money	(2.2%)
Tuition Money for Ph.D. Pursuits	(2.2%)

The most frequent support was reported in the category of travel funds and one of the least frequent was equipment money. The percent of faculty receiving support in reporting institutions averaged 25%, with a high of 71 percent at one institution, and a low of .7 percent. Sixty-one percent of responding institutions stated they had a line item in their budget for research.

Ninety-five percent of responding institutions reported having a sponsored projects or research office. The following types of assistance were received from these offices:

* Source Searches for Faculty	40	(90.9%)
* Information Dissemination	41	(93.1%)
* Proposal Budget Development	38	(86.3%)
* Proposal Writing Assistance	38	(86.3%)
* Typing, Copying & Mailing	35	(79.5%)
* "Seed Money" for Research and Development (internal grant awards)	27	(61.3%)

* Securing Facilities & Development	23	(52.2%)
* Matching Funds & Release Time	19	(43.1%)
* Other	6	(13.6%)
including:		
Workshops	3	(6.8%)
Preparation of Manuscripts for Presentation	1	(2.2%)
Grant Negotiations	1	(2.2%)
Outside Training	1	(2.2%)
Proposal Production Money	1	(2.2%)

Results of support for faculty research and scholarship in the form of external funding also varied a great deal. A total of $121,976,638 was received by reporting institutions, with an average of $3,388,239, a high of $10,527,781, and a low of $150,000. A total of 2,271 proposals received external funding in these institutions during FY 86-87, with an average of 58 funded proposals per institution, a high of 151, and a low of 0.

These awards were the result of an average of 110 submitted proposals, with a high of 257 and a low of 1 submission. The average acceptance rate was 55.2%. By comparing the number of submissions (4,093) with the number of full-time faculty (19,256), we can see that roughly one in every five faculty members (21.27%) submitted a proposal this past year. (Totals do not account for multiple submissions from faculty members). Institutional ranges included highs of 114% (36 FTEF and 41 submissions) and 65% (306 FTEF and 200 submissions) and lows of 0% (100 FTEF and 0 submissions) and 3% (500 FTEF and 14 submissions). We can see that considerable external funds are awarded to masters only institutions, that faculty involvement is fairly high, and that acceptance rates are, perhaps somewhat surprisingly, good.

In what specific ways can masters only institutions further encourage faculty research and scholarship? First of all, it is essential to have institutional commitment to faculty involvement in research

and scholarship. There must be clear, vigorous and encouraging leadership from the administration, stating that research and scholarship are essential to the welfare of the institution and to the welfare of its programs, students and faculty. The mission statement of the institution should include an emphasis on the importance of faculty research and scholarship. Documents relating to retention, promotion and tenure should clearly reflect that weight is to be given to research and other scholarly activity.

In many of our institutions, this has already happened. In institutions where it is newer, it will be necessary to relate research and scholarly activity to teaching--to emphasize that good teaching includes continued professional growth, whether through research or other scholarly activity. We do not want (and cannot afford) to adopt the research institution model. However, we can link research and scholarship with teaching in a synergistic relationship. Undergraduate and graduate students can become partners with faculty in research endeavors, with faculty providing important mentoring experiences and benefitting from student assistantships.

Of course, to truly support research and scholarship, teaching loads must often change. On our campuses, it is most likely that we can combine some faculty who do not wish to emphasize research and scholarship and who, therefore, teach four or so courses per semester with faculty who wish to research having lower course loads. Perhaps during a given semester, a few faculty are completely released to focus almost solely on significant research or other scholarly activity. It would seem appropriate for faculty to have one, two, or more courses reduced for research and scholarly activity. It would seem reasonable

to say that four courses per semester (the average found in the survey mentioned earlier) is too heavy a load for faculty in addition to significant and continued research and scholarly output.

Faculty release time can be provided by: 1) system or campus decisions to reduce the load; 2) taking dollars or a number of positions "off the top" to assign to faculty through request for proposal processes for research and scholarly activity; 3) the use of teaching assistants, research assistants, and instructors to teach appropriate courses, labs, discussion sessions or to assist faculty with their research (research assistants, paired with research faculty, can gain important mentoring experiences which should encourage doctoral study or other significant professional growth); 4) the creative adjustment of teaching loads within departments, or colleges, through the use of larger course sections, credit for thesis direction and independent studies, and heavier/lighter course loads for a faculty member in successive semesters. Faculty should obviously also be strongly encouraged to develop grant proposals which, if funded, will provide external funding for release time.

Support from a central office of sponsored projects or office of research is also critical (see Figure 1). In addition, some sort of grant bulletin is helpful. Such a publication can describe recent research and scholarly activity on the part of faculty, highlight outstanding faculty and their recent achievements, carry messages from appropriate administrators regarding issues related to research and scholarship, announce grant opportunities and other professional development opportunities, list recently submitted proposals and

recently funded proposals, and provide "how to" suggestions for external funding.

Research coordinators within colleges or large departments can also aid faculty. Such coordinators can be especially helpful in linking the college or department with the office of sponsored projects or research. Research coordinators can work to help faculty identify research interests and possible funding sources, whether external or internal. New faculty and those older faculty wanting to attempt research and scholarly activity after periods of inactivity can especially benefit from the aid of a supportive research coordinator.

Many institutions also conduct Faculty Interest Surveys in order to promote research and scholarly activity. In these surveys, faculty are asked to list their research interests using key words and key areas. Faculty responses can be compiled using a computer data base and/or in a printed publication. The office of sponsored projects can then use this as a guide to send out individual announcements of grant opportunities, etc. to faculty. The SUNY Spin system can work very well when linked with a campus Faculty Interest Survey.

The Office of Federal Projects (OFP), an office of the American Association of State Colleges and Universities, can provide invaluable help to comprehensive universities. While membership is somewhat expensive, for institutions with over 10,000 students annual membership is approximately $7500, the support for research and grant development is highly beneficial. The staff in the Office of Sponsored Projects at my institution lists OFP as its most important resource. We receive regular guides to external support from OFP, gain valuable information at their

twice yearly meetings in Washington, and feel free to call the OFP staff with questions.

New sources of external support for masters only institutions include special agency initiatives for research in predominantly undergraduate institutions and for undergraduate students. NSF funds a number of initiatives to enable more opportunities for faculty and students at predominantly undergraduate institutions to engage in research. RUI (Research in Undergraduate Institutions) exists to strengthen the research environment in departments that are primarily oriented to undergraduate education in science and engineering and to encourage the linkage of research and education at predominantly undergraduate institutions. A quick analysis of 1985 RUI awards indicated that comprehensive universities, rather than research institutions, did receive most of these awards. In fact, 15 California State University campuses received RUI awards in 1985.

A second NSF initiative is titled Research Experiences for Undergraduates (REU). Its purpose is to provide hands-on experience in active research for undergraduates in mathematics, science and engineering. In 1987 REU provided approximately 2000 awards to undergraduate students. An informal analysis of 1987 REU awards indicates that these awards most frequently seem to go to doctoral granting and research institutions, however, and not to comprehensive universities.

A third NSF initiative aimed at undergraduate instruction is the Instrumentation and Laboratory Improvement Program (ILI). The goal of ILI is to improve the undergraduate curriculum by providing support for new or improved instrumentation and laboratories and/or field

courses in science, mathematics, and engineering. These funds are specifically to provide matching support for necessary instrumentation at two and four-year colleges and universities.

A final NSF initiative for predominantly undergraduate institutions is the Undergraduate Faculty Enhancement Program. This program exists to update faculty through actual involvement in programs which should ultimately improve their scholarship and their undergraduate teaching abilities.

The National Institutes of Health (NIH) also sponsor an effort to develop research in institutions providing undergraduate training for a significant number of future scientists. In 1985, NIH established Academic Research Enhancement Awards (AREA) for the support of new or expanded health related research projects conducted by faculty in non-research institutions.

What we don't see in these important and necessary initiatives is special emphasis on research connected with faculty or student research at the masters level. While many of our institutions have and will benefit from these initiatives, they are primarily aimed at undergraduate programs and students. Initiatives are needed to support faculty and student research and instrumentation at the masters level. Such an initiative could improve our masters programs, heighten faculty involvement in research and other scholarly activity, and provide future professionals and doctoral students with strong research skills and experience with cutting edge instrumentation. We could also consider proposals to establish consortiums or centers to enable faculty involved in masters level education to research and work together and to share expensive instrumentation.

Masters only institutions should also aggressively develop research partnerships with industry. Applied research and development are needed by industry, and our institutions can provide faculty as well as student interns for these efforts, also bringing corporate employees to campus as guest lecturers or researchers.

Finally, there are a few additional ways to encourage faculty research and scholarship at masters only institutions. At CSU, Chico we have established an Incentive Program to return a certain percentage of the indirect recovered through grant and contract activity to faculty (see Figure 2). There are three categories within this Incentive Program. The first allocates funds to provide Summer Scholar Fellowships to enable faculty to conduct significant research, publication, and grant development activities. This category also allocates funds to support page charges for accepted manuscripts and to provide support for word processing of accepted manuscripts or books. The second category of the Incentive Program is a Base Allocation, which allocates funds to each college based on the number of full time faculty. These monies are to be used for professional travel and other professional development activities. The third category of the Incentive Program is the Unit Incentive allocation, which returns funds to the colleges according to the amount of indirect generated by them during the past year. These funds are to be used as seed money for further research, scholarship and grant development.

We have also established a means to recognize faculty who have recently had books published. Through Book Launchings, the President and I invite the University Community to attend informal wine and cheese receptions to celebrate faculty authors.

Finally, it is important to recognize the importance of technology in encouraging and supporting faculty research and scholarly activity. Word processing has lead to desktop publishing, laser printers have changed the look of what we produce, and disk drives and optical scanners are arriving which will take diskettes and typed or processed text (from whatever computer or typewriter) and transfer onto an Macintosh or IBM disk. This means that we can produce faster, make our productions look more professional, and work with each other even if our computers are not the same. The staff in the Office of Sponsored Projects at CSU, Chico supported faculty in submitting 228 proposals last year, with a 66 percent acceptance rate. This staff has grown only slightly in the past five years, proposals submitted have increased by 79.5 percent, and it is our use of technology (along with staff commitment and faculty interest and initiative) that has enabled such a great increase in activity.

In summary, it is essential that we support research and scholarship among faculty at masters only institutions. To not do so would result in less than full use of significant numbers of research-trained faculty and in less than complete programs and fully educated students, particularly at the masters level. Masters only institutions can provide a special option for research trained faculty and research oriented students if we blend teaching with research in cooperative, mentoring experiences closely linked to coursework experience. As a result, both our students and our faculty can continue to grow, masters only institutions will further benefit society and will continue to complement research institutions.

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Figure 1

THE OFFICE OF SPONSORED PROJECTS

HOW WE CAN HELP

The Office of Sponsored Projects is responsible for coordinating all campus activity related to externally funded grants, contracts, and sponsored projects. We provide a full range of grantsmanship services for proposal development and project administration. We will assist you with all phases of proposal preparation, including writing, editing, and critiquing proposals and their associated correspondence; assisting with project design and development; and coordinating the production of the proposal through writing, wordprocessing, duplicating, packaging, mailing, and follow-up correspondence. **We're here to help you. . .**

WE'RE HERE TO HELP YOU

Review concept papers for funding potential and discuss and develop their potential with the author;

Identify potential funding agencies for sponsored projects through source searches of the Sponsored Projects Information Network (SPIN), bound references, program announcement circulars, and direct contact with agencies;

Critique, and when necessary, edit, rewrite, or restructure concept papers and full proposals;

Provide institutional capability statements describing University resources, academic programs, faculty, history of activities in a given field, and so on;

Prepare project budgets;

Interpret application guidelines and assist in the completion of forms;

Supervise the production of proposals, when necessary, through author and institutional review, wordprocessing, duplicating, packaging, and mailing;

Maintain a library of program materials and applications from government and private funding agencies;

Maintain a "boiler plate" file of comprehensive descriptions of institutional resources that are modified as needed for inclusion in proposals;

Review, and route to specific faculty, announcements of current funding opportunities published in periodic circulars;

Attend and summarize bidders' conferences and submit reports of same to appropriate campus personnel;

Prepare the Faculty Interest Survey, a biannual survey of each faculty member that identifies his or her fields of interest; and

Communicate with funding agencies and, where appropriate, negotiate budget and scope-of-work specifications.

Figure 2

THE UNIVERSITY FOUNDATION
Incentive Program
Based on FY 1986-87 Income

Foundation net income for incentive program $237,073.00

Formula

	Graduate School	Board of Governors
$0-50,000	$40,000 (80%)	$10,000 (20%)
$50,000-up	107,243 (60%)	74,830 (40%)
	5,000 (Bd.Alloc.for Aspen)	
	$152,243	$84,830

Faculty Incentive Formula

$147,243	Funds available; divided as follows:
36,811	25% for Faculty Summer Fellowships **
36,811	25% for Base Allocation
73,622	50% for Unit Incentive Plan

** The Faculty Summer Fellowships will be increased to $3,000 each beginning with the Summer 1988 awards. Funds for up to eleven awards will be held for the competition next Spring. In addition, $3,000 will be used to support faculty publication costs (page charges, manuscript typing, etc.) The remaining will be used to cover faculty workshop, seminar and reception costs sponsored through the office of Professional Development.

INCENTIVE PLAN SUMMARY

Academic Units	Base Allocation	Unit Incentive Allocation	Total Allocations
CAHE	$1,703	$707	$2,410
CBSS	5,660	6,803	12,463
CBUS	3,707	1,818	5,525
CCOM	2,004	2,842	4,846
CEPE	5,221	16,491	21,712
CECT	3,794	8,864	12,658
CHFA	6,878	964	7,842
CNS	6,030	4,756	10,786
CIS	267	1,149	1,416
ILIS	460	-0-	460
IS	1,087	1,826	2,913
GS/SRC/TRC/EDA	-0-	9,762	9,762
CE/AAA/NCHEC	-0-	17,640	17,640
	$36,811	$73,622	$110,433